AMERICAN VETERINARY REVIEW,

MARCH, 1889.

EDITORIAL.

ARE QUADRUPEDS SUBJECT TO HEMORRHOIDAL DISEASE?—A question put by Dr. W. Badenhamer—His negative solution—it is based on Prof. Gothier's observations—our researches on the subject—numerous authorities ignore the disease—it is accepted by a few—our observations—the question is worth the attention of veterinarians—will they help to solve it? ENZOOTIC BACTERIAN HEMOGLOBINURIA.—Dr. Paquin's paper on the mad itch or enzootic meningitis—that of Dr. J. Meyer, Sr., on a similar disease—symptoms, lesions and pathological nature of hemoglobinuria—are the three diseases alike? MEETINGS OF SOCIETIES.—Kind invitations received which we were oblighed to decline—too short time to prepare—no bad excuse—means to remedy—the annual society meetings calendar to be issued in our next number. SANITARY REPORTS.—Their advantages—thanks for those received, but more expected. REFERENCE HANDBOOK OF THE MEDICAL SCIENCES—VETERINARY POST-MORTEM EXAMINATIONS.—Dr. Clement's excellent article—the subdivision of the subject—work in the laboratory—in the field—modes of procedure—reduction of what is seen—the writing of a report a very important work—the three cases reported an excellent model to follow. NOTICE.—The semi-annual meeting of the United States Veterinary Medical Association.

ARE QUADRUPEDS SUBJECT TO HEMORRHOIDAL DISEASE?—This question, which is addressed to the medical profession by Dr. W. Badenhamer, in the columns of the *New York Medical Journal*, calls, we think, for a word of reply at our hands, especially in view of the interest which attaches to the subject by reason of its bearing on veterinarian practice, and more particularly from the evident bias of the doctor in favor of the negative side of the proposition.

If we rightly understand the matter, the basis of this negative verdict is principally the fact of an authoritative dictum

promulgated by Professor Gothier, of the Lyons Veterinary School some seventy-five years ago.

Having encountered cases in our practice of what we have considered true hemorrhoids, according to the definitions given by Dr. B., and having knowledge otherwise of reports of similar cases, we cannot avoid a feeling of surprise at the conclusions which have been reached by the author of the article in question, and we, therefore, proposed to ourselves an exploration of the regions of veterinary lore, with the design of discovering if possible, something in modern veterinary literature besides the archaic opinions of Professor Gothier. But the result of our exploratory labors has been a sad disappointment, and little, if any benefit has accrued to veterinary science therefrom. We do learn, however, that Professors Law, Robertson, Messrs. Blaine, Hill, Youatt, Bouley, Roll, Delwart, Cruzel and many others seem all to appreciate the fact of the extreme rarity of hemorrhoids in animals. It is indeed a fact that in the works of a portion of these writers the disease is not even mentioned, although it may be admitted that Hertwig, Mayhew, Williams, Percival, Steel, Armitage, Zundel, Pradal and Beugnot do mention or describe an affection similar to hemorrhoids. But it is still a fact that the positive recognition for which we were hunting, failed in all our reserches to materialize.

Shall we, therefore, agree with Dr. Bodenhamer's conclusion, and admit that there is no place among the pathological troubles of our domestic animals for hemorrhoids, and that they are quite free from the "*inflamed or relaxed condition of the hemorrhoidal veins and capillaries of the inferior* (or for our quadrupedal patients), *posterior portion of the rectum from some existing cause.*"

This is a question to the solution of which we think veterinarians ought to feel it to be their duty to contribute.

The subject is not without importance, first because of its general bearing upon the study of comparative pathology, and again, because of the strength of the proof which the fact might, as Dr. B. remarks, contribute to the argument in favor of the Darwinian theory of the origin of man.

ENZOOTIC BACTERIAN HEMOGLOBINURIA.—In the June number of the present volume of the REVIEW, Dr. P. Paquin presented a paper in competition for the REVIEW prize entitled "Studies of a cattle disease hitherto ill understood," known by the common name of Mad Itch, and for which term the author proposed to substitute that of "Enzootic Meningitis."

In our number for February we published a paper, read at the September meeting of the United States Veterinary Medical Association, in which our esteemed friend, Dr. J. C. Meyer, Sr., also used the name selected by "A Westerner," and this fitly supplemented the competitive paper of our prize candidate.

Subsequently we encounted amongst our exchanges the report of a paper presented to the *Academie des Sciences*, of Paris, upon a disease which not only bears some relation to that which has been treated by our American correspondents, but may be, in fact, identical with it.

Whether enzootic bacterian hemoglobinuria is the mad itch of our continent, we are unable to say, but as there is no danger of excessive information on the subject, we have thought the reproduction of the article in question might be of some advantage to our readers. If the microscopic lesions of the two affections should prove them to be the same, we shall be pleased to know the fact, and much gratified to have contributed our mite to the elucidation of the subject by calling the attention of our pathologists to the European discovery.

MEETINGS OF SOCIETIES.—We have been honored on several occasions by invitations from the various Veterinary Societies, which are becoming more and more numerous in the different States, with invitation and solicitations to be present at their meetings, and it has been with deep regret that in the majority of cases we have been compelled to accompany our acknowledgments of the receipts of these kind invitations with the expression of our inability to avail ourselves of the opportunities thus presented, of becoming personally acquainted with many of our professional brethren. We speak truly when we say that our regret has been deep on these disappointing occasions, for in many instances we have not only missed the social enjoyment attending

the gathering, but have been compelled to forego what we have considered to be a duty on our part, in failing to meet our brethren in the manner proposed. But even this consideration could not avail to prevent our inability from thwarting our inclination.

The stale and dilapidated pretext, which has almost become a joke, not as uncommon as it ought to be, of an "unexpected and imperative summons elsewhere," and the like, amongst busy practitioners, has not always been our excuse for declining an invitation, but the trouble has been oftener attributable to the lateness of the receipt of the missive of invitation, which has been delayed until the interval remaining before the time of meeting was quite too scant for the preparation required for a trip, perhaps to the remote East or the far West. And we believe that this is not only true in our own case, but that it is also a fact with respect to many others, and that societies like those which are located in Massachusetts, in Pennsylvania, in Ohio, and in Illinois, to mention only a few, are in the habit of transmitting their notifications, not only to their own members but also to others, at so late a period as quite to defeat the real and practical purpose of their transmission at all, much to the disappoinment and detriment of every one concerned.

Veterinary societies are not available for good to the veterinarians of one State alone; they do not contemplate the creation of friendly feelings between merely a few practitioners of one small sub-section of the country; they properly mean the encouragement of acquaintanceship, professional intercourse and friendly relations *throughout the whole country*, between all of us who write ourselves brethren.

To remedy the difficulty in the way of securing a large attendance upon stated and other meetings, and to neutralize, if possible, the effect of the old stereotyped excuse of the "case of colic to attend," we now venture the suggestion, and urge the request upon all veterinary societies throughout the land, through their Presidents and Secretaries, to notify us of their times and places of meeting for the next year.

The matter will make a good subject for the introductory

pages of our coming thirteenth volume, and we do not doubt that many of our brethren will be induced by a conspicuous reminder of the coming appointments, to add their presence to the meetings, who would otherwise suffer them to come and go in a listless and careless way, as they have too often done in the past.

SANITARY REPORTS.—We have frequently called the attention of our readers to the necessity and the consequent benefit which must follow the publication of the reports which describe the presence and progress of the outbreaks of contagious diseases which at times prevail in various sections of the country, as they may be observed by our State Veterinarians, as well as by private practitioners.

The advantage which would doubtless accrue from the publication of a strictly *American Sanitary Bulletin* are too evident to require any enlargement upon the remarks in which we have already indulged when treating this subject on previous occasions. We do not consider that our appeals have been entirely ignored, and cannot but believe that the reports which through the kindness of many veterinarians through the country, occasionally come into our hands, are the fruit of these repeated appeals. We are thankful for the few which we receive, but we think there is no good reason why the number should not be materially increased. The intelligence which we publish to-day, under the title of "Sanitary Extracts," illustrates the importance of the subject, even if we consider but a single one of the diseases referred to, glanders, for example. Evidently it is a more prevalent disease than many of us are aware of, and we believe that this prevalence may be largely attributed, in the words of the Cattle Commissioners of Massachusetts, to the fact that "*the law requiring persons who have knowledge of, or have reason to suspect, the existence of a contagious disease among any species of domestic animals, to make their information known to the proper authorities,*" *is too often disregarded.*

This language does not refer exclusively to glanders, but covers the entire category of communicable and epidemic diseases. We have in a number of the States and some of our large cities, good laws and sufficient sanitary regulations, but not a single one of

them that will enforce itself. If it is applied, it must be by the carnal weapons of flesh and blood, and the moral means of vigilance and determination.

It is mere fatuity to be satisfied with recognizing cases of glanders, and ordering their destruction, if we do not also comply with both the spirit and the letter of the law, and faithfully report the discovery of every known case. We may, as individuals, resort to the proper measures to dispose of a glanderous patient, but we have omitted a duty, even in such a case, if we have failed to report the facts to the proper authorities. When such a course is generally adopted and faithfully persevered in, we may look for the enactment of good laws, and their efficient application, and the benefits of their enforcement will be shared by the entire community, but only then. The conditions must be fulfilled if the results are to be secured.

Reference Handbook of the Medical Sciences—Veterinary Post Mortem Examinations.—We have received from Dr. A. W. Clement, V. S., advanced sheets of this work, and have been well repaid for the time devoted to the perusal of its contents. Every veterinarian ought to read it and profit by its suggestions, for Dr. Clement has here presented a subject which we fear is sadly ignored and neglected by our veterinary pathologists. A post-mortem examination is seldom a work of which the details possess any attractive features, and very few persons are in haste to undertake a "job" of the kind, for that is what it is, though it is not always easy to discover whether the reluctance proceeds from the fact that it involves much labor of a disagreeable sort, or whether the secret aversion springs from a consciousness of one's incompetency to the expert and creditable performance of the duty. Dr. Clement's instructions in the method of proceeding are wise and practical. He divides the post-mortem into two classes—one of which includes such as may be made while the practitioner is furnished with the equipments and facilities contained in a regular laboratory at large establishments, provided with tables, "ad hoc;" the other comprising those which are made "al fresco," in the field. But in both he shows the reader the best method of conducting his investigations; how to proceed

step by step, from the first examinations of the cadaver to the external divisions of the various regions; then to the study of the different structures; of the organs of the abdomen; of the thorax and the cranial cavity. In the plan recommended and described by Dr. Clement, nothing can escape attention, and the result must be such a record of the post mortem as shall possess true value as a practical history of the lesions as they are found and their relations to the fatal result which has occurred. Veterinarians of to-day may learn much by the reading of the three cases which are recorded in the work. The proper preparation of a written report is not always a matter of easy accomplishment, and it is a part of veterinary education which, we are afraid, is much neglected in our American schools, notwithstanding the fact that it ranks amongst the most important of our professional duties. The record of an autopsy is a matter of too great importance to be loosely or incorrectly prepared. To the individual practitioner it may be merely a confirmation of a diagnosis, but if with it is connected the detailed report of a case, including the history, the cause, the symptoms and even the treatment, it then becomes a part of the practical knowledge and experimental evidence which form the material of which the science of positive pathology is composed, and enters at once into the mass of the facts which form the finished structure of medical science.

The brevity of our space forbids our entering into the minute consideration of Dr. Clement's contribution to the Reference Handbook, but we say without hesitation, that the merits of this part of the work alone are sufficient to entitle it to a place in the library of all veterinarians. Doctor Clement has given us to understand that he has in contemplation a publication on the same subject, enlarged into book form, and we hope, for the benefit of our friends, that he will not disappoint the expectation he has raised.

NOTICE.—The next semi-annual meeting of the United States Veterinary Medical Association will take place on the 19th, or the third Tuesday, of March, in Boston. The well known energy of Dr. R. Huidekoper, the President, furnishes a sufficient guaranty of the interest and importance which will doubtless

characterize the occasion, and we therefore hope that many members will profit by the opportunity to gather again in the well remembered place of meeting with which so many pleasant associations are connected. Notice of the meeting will no doubt be mailed in due time by the Secretary.

ORIGINAL ARTICLES.

TUBERCULOSIS.

A Paper read before the Massachusetts Veterinary Association

By J. F. Winchester, D.V.S.

Tuberculosis undoubtedly prevails among the domesticated animals over the entire globe, and has been well defined as a universal panzootic.

Its frequency depends upon various external influences as well as constitutional predispositions of different species and breeds. The centres of this malady are met with in the great centres of human population, and in these centres a large per cent. of tuberculosis is found in mankind.

This disease is of the greatest importance, since it has been induced experimentally in animals of different species, as carnivores, herbivores, and omnivores, by inoculation and feeding for certain periods tuberculous material from the lungs and glands of diseased subjects, as well as their milk.

Since man derives a great deal, and in some instances his entire sustenance, from the flesh and milk of animals around him, we can scarcely doubt that an intimate casual correlation exists between him and them with regard to the disease.

Tuberculosis has been demonstrated to be due to the bacilli of tuberculosis by Koch, and that the germ will re-produce itself innumerable times and retain its virulence. It will not multiply outside of the animal body except by artificial means, but it has been known to retain its activity in decaying sputum for forty-three days, and in air-dried sputum for 186 days. Death has taken place from the inoculation of the bacilli into susceptible

animals as soon as ten days when introduced directly into the circulation, in five or six weeks when subcutaneously inoculated, and in from three to four months when associated with infectious animals. These facts have been well demonstrated by Koch in his numerous experiments. Animals that are not susceptible to this disease will succumb to the direct inoculation of large numbers of the bacilli. The period of incubation is an uncertain one, as will be seen from the results of the experiments made by Koch, varying as regards the amount of virus entering the system, and the susceptibility of the animal.

By artificial means this bacilli has been cultivated for eighteen months, through twenty-six successive breedings, and then found, by inoculation, to produce the morbid phenomena of tuberculosis, the same as when taken from an infected animal. This organism may gain its entrance into the system by circulation, from the mother, respiratory or digestive tracts, or through wounds on any part of the body. It has been well said that contagious diseases in general, and tuberculosis in particular, are very infrequent in habitations to which strange cattle are not admitted, and where vacancies are filled up by the home stock.

The development of the disease depends upon the surroundings, condition of the animal, the organ or tissue involved, and the amount of virus taken into the system. The first evidence of infection is an elevation of temperature, which often passes away in a few days unnoticed.

The general condition of the animal will depend on the progress that the disease has made so as to interfere with the functions of the body. This will vary from the appearance of perfect health to emaciation, with a rough, starey coat, and hidebound. Among other symptoms, there is an enlargement of the external lymphatic glands of throat, neck and flank, and usually associated with disease in some of the internal organs. Again, there is lameness without any evidence of external cause, swelling of the joints, contraction of muscles of the neck, and abscesses along the bones.

Cases often present themselves with a cough, more or less discharge from nostrils, hurried and labored respiration, or even dif-

ficult and audible respiration with a grunt. When the digestive organs are the seat of the disease, capricious appetite, bloating, tenderness on pressure, fæces soft or constipated, and in last stages thin and fœtid. The first evidence where the digestive organs are involved, the animal does not hold its own in flesh and general condition.

The udder is not infrequently a seat of the trouble, which shows itself in the form of small nodules or circumscribed mammiets, which do not yield readily to the treatment for garget, for which they are often mistaken. The nervous system is not exempt from its ravages, as seen in cases of paralysis or excitement, when the spinal cord or brain is affected.

The generative organs are not infrequently involved, as seen in nymphomania or continual bulling.

That the lesions of tuberculosis are not confined to any special tissue or organ, can be seen by the various symptoms it presents, as well as the different ways the virus may enter the system.

Of 200 cases that were inspected by Goring of Bavaria, in 88 cases the lesions were confined to lung and serous membranes; in 67 cases the lesions were confined to lungs only; in 33 cases the lesions were confined to serous membranes only, and in 12 cases where the disease was in other organs.

Again in 1,596 cases of tuberculosis, carefully investigated in the Grand Duchy of Baden, 21 per cent. with lung lesions only; 28 per cent. with peritoneal and pleural lesions only; 39 per cent. with lung and pleura; 9 per cent. with general tuberculosis; 3 per cent. with genital organs.

It is a well-established fact that heredity has an influence in its propagation, and it may be transmitted by the male as well as by the female. Notwithstanding the above fact, animals may be born from tuberculous parents without any predisposition to the disease, and multiply the same as if from perfectly healthy ancestors; still, the predisposition may be inherited from tuberculous parents.

That it is an infectious disease has been well established. As long ago as 1780, Dr. Wichmann, court physician at Hanover, stated that phthisis was transmitted when exposure to infection

had been frequent or long-continued. The experiments of Villemin in 1864 caused him to come to the conclusion that tuberculosis was an infectious and specific malady, capable of being transmitted from one animal to another. From clinical observations tubercular phthisis is a contagious malady equal in infectiousness to glanders and contagious pleuro-pneumonia, and contagion plays a more active part in its propagation than heredity.

It has been accepted, that: 1. Tuberculosis has been observed in all warm-blooded animals submitted to domesticity or deprived of their liberty. 2. Tuberculosis presents analogous manifestations in man and animals in life and death, and the course and terminations are the same. 3. There are clinical observations which prove the transmission of tuberculosis from animals to man by the consumption of the milk of tuberculous animals. That it is not necessary to have the udder tuberculous in order to have the milk contain the bacilli of tuberculosis, has been demonstrated by Dr. Austin Peters of Boston, he having found the bacilli in milk from a tuberculous cow where the udder was in an apparently normal condition. Fleming cites a case where two young girls were fed upon milk from tuberculous cows, and died from tuberculosis; while their brothers, more fond of whiskey than milk were hale and hearty. In order to control this malady the diseased animals should be killed; everything that has been in contact with them thoroughly disinfected. Isolate all animals that are at all suspicious until positive symptoms manifest themselves. Never breed from an animal whose history is tainted, or about whom there is the least suspicion. As regards treatment, this disease has taxed the energies and defied the efforts of physicians for generations; and of what practical benefit could it be, since these animals are useless for breeding, dangerous for dairy purposes and as companions, and unfit for food. Our energies, therefore, should be directed towards prevention and eradication.

Having stated a few facts as to what the disease is, its cause, some of the prominent symptoms and the means necessary to combat it, it may be of interest to some to know to what extent tuberculosis was the cause of death in the human family in this State during the year 1886.

According to the Registration Report for that year, there were 39,040 deaths in this State, and of that number 7,329 died from tuberculosis, or 18.37 per cent.

From the twelve prominent causes of death, numbering 23,-872, tuberculosis claims 30.7 per cent.

There were 11,772 deaths under five years of age that year, and of that number 1,372 were from tuberculosis, or 11.68 per cent. Excluding all deaths under five years old, than tuberculo sis claims 21.88 per cent.

That this disease exists among the dairy stock of this State, a few facts gleaned from Drs. Penniman of Worcester, Osgood of Springfield, Bunker of Newton, Peters and Saunders of Boston, besides a few of the individuals who have suffered a loss of cattle, establishes the fact.

An examination of forty-nine herds, in different parts of this State, or 1,110 animals, shows that on thirty-four farms, where 866 bovines were kept, 239 were killed, and the examination after death sustained the diagnosis of tuberculosis. Besides these 239 that were killed, 189 presented symptoms that would cause them to be looked upon as suspicious. On the fifteen other farms, where 244 bovines were kept, twenty-eight presented symptoms that indicated tuberculosis, but none were killed to sustain the diagnosis; and besides these there were nineteen suspicious cases.

Having obtained the consent of a few gentlemen that have suffered a loss of cattle from this cause, I present the history of those outbreaks, and the rest I specify by numbers.

In the spring of 1887, at the request of Mr. Jacob C. Rogers, Dr. Austin Peters and myself made an examination of the milch cows at his farm in Peabody. There were a number of animals that presented the symptoms of tuberculosis. An inquiry into the history of the cattle kept on this farm revealed the facts: that some years previous to this the herd of Jerseys and grades owned there had had the disease, but to what extent not known; these were disposed of about the year 1878, with the exception of one cow, which afterwards died of milk fever. For two or three years the number of cattle on the farm was limited. When the farm was stocked again it was with Guernseys, and no evi-

dence of disease was manifested in his stock until the year 1883, when a cow, recently purchased, dropped a bull calf and then gradually failed until she died, and an examination showed the lesions of general tuberculosis. In 1885 this bull was killed, and an examination presented the same lesions as found in his dam. From that time the malady steadily gained ground, until, in the spring of 1887, all the cattle on the farm, with a few exceptions, had been killed or otherwise disposed of, and the barn was then fumigated. Not suspecting that this trouble was infectious, new animals were added to the herd after killing the bull, in 1885, and in one instance a bull was bought in November, 1886, and in June, 1887, he was killed, and the post-mortem showed the lesions of the disease. This bull came from a farm where tuberculosis had never been known to exist. Thinking that the disinfection of the barn had been such as to remove all traces of the disease, Mr. Rogers, in May, 1888, purchased in Vermont six cows that were healthy and from a farm where tuberculosis was not known to exist, and put them in the barn from which he had taken the diseased animals. In December, 1888, only two of these animals remained in an apparently normal condition; the others, having developed the symptoms of tuberculosis, had been taken away. The forty-four animals on the farm, including the six from Vermont, had been killed or otherwise disposed of.

In December, 1884, five Guernsey cows were brought to the farm of Mr. F. L. Ames in North Easton, and in August, 1885, a bull of the same breed. During the winter of 1887 this bull began to fail, and in April of that year he was examined by Dr. J. S. Saunders of Boston, and the diagnosis of tuberculosis was made, when he was killed, and the autopsy showed the lesions of tuberculosis with phthisis.

In May of the same year, after an examination of the herd (thirty-six animals) by Dr. A. Peters of Boston and myself, ten mature animals and four calves were killed. Six of the cows were Ayrshires, and the others Guernseys. The calves were killed as they were sired by the bull killed in April, and the others as they presented symptoms of tuberculosis, which were sustained by the post-mortems. The following December, four

more, three Ayrshires and one Guernsey, were disposed of by death for the same reason, making in all up to date nineteen herds.

Of the imported Guernseys, three cows and the bull were killed, one cow died from the effects of calving, and one remains. Previous to bringing the Guernseys to the farm the stock was all Ayrshire, and there is no history of a sick animal other than due to calving.

LENOX FURNACE, MASS., Oct. 30, 1888.

J. F. WINCHESTER, D.V.S.

DEAR SIR:—In reply to yours of 27th, would say, we have killed thirty-two head of cattle, all showing conclusive evidence of having tuberculosis. This comprises the entire herd. The stables have stood empty since some time in June, and have been thoroughly washed with a solution of crude carbolic acid, and afterward whitewashed.

On November 15, 1887, eight cows and heifer were sent here from Palmer, Mass., one of which was a mere skeleton, very weak, coughed hard whenever moved, coughing up quantities of soft yellow matter. She stayed with the other cattle for three weeks or more, and was then condemned by a veterinary surgeon and ordered killed. Along in March I noticed several of the other cows coughing, and by the 1st of May most of the cows were coughing and losing flesh rapidly, although well fed, and before long not an animal was exempt. Numbers of them (eight I think) were opened by Dr. Geo. N. Kinnell of Pittsfield, and all killed were slaughtered after being condemned by him. We killed twenty cows, three yearling heifers, one yearling bull and eight calves. Ten of the cows were five years old or over, twelve animals under two years old, all but one high-grade Jersey or thoroughbred Jersey. So far as I noticed, the age had little to do with the severity of the disease, as calves of two or three weeks would cough quite as hard as the cows. Many of them, old and young alike, got so sore from coughing that they seemed to suffer greatly from each attack. The cattle were fed through the winter on ensilage in morning, hay at noon, and ensilage at night. Wheat middlings fed on ensilage twice per day. Were turned out to water once each day. When once the disease got started with a cow, she would eat everything within reach,—weeds, stubs and all,—and she was constantly hungry. One cow was killed within a few days of calving, and the lymphatic glands and the intestines of the calf in others were plainly blotched by forming tubercles. I am sure that I have answered your questions as fully as you may desire, but will cheerfully give further information at any time.

Yours truly,

HENRY J. WASHBURN,

Agent Lenox and Stockbridge Land Co.

LENOX FURNACE, MASS., Dec. 12, 1888.

J. F. WINCHESTER, D.V.S.

DEAR SIR:—At the time of the arrival of the cows from Palmer this farm had twenty cows and three yearlings on it. In former years it commonly carried

forty to sixty head of all ages, but owing to a change of ownership in May, 1887, the number had been reduced. I was born and brought up on this place, as well as were my father and grandfather, and I never knew of or heard of the existence of a case of tuberculosis in the town until the arrival of one from Palmer in No. vember, 1887, and can therefore safely say that none ever existed here before.

Yours truly,

HENRY J. WASHBURN.

During the year 1885 Mr. C. S. Emerton of Peabody restocked his farm, having during the previous year sold all the cattle then on the farm. He would occasionally have a cow run down, and dispose of her, but gave little or no heed to the trouble. During the fall of 1887 several failed in their milking qualities, and did not clean after calving. This led to an examination of the cows, and tuberculosis was found to exist. Those that presented the symptoms of this disease had been in the herd from a few months to as many years. Not responding to the grain given them, and gradually losing flesh, nineteen mature cows and all the calves raised on the farm were killed, and an examination after death showed the changes due to tuberculosis. In the spring of 1887 a bull was bought in Vermont, and in the fall he was killed, having well-marked symptoms of the disease. These animals were grade Holsteins and natives. The result of this outbreak was that all the bovines on the farm were either killed or disposed of otherwise, and his loss has been his entire herd, or forty head, during the past few years.

In the spring of 1887 Dr. J. Penniman, V.S., of Worcester, was called to a farm, and while there noticed a cow that was coughing, thin in flesh and apparently diseased with tuberculosis. On making inquiry about her, he learned that she had been coughing quite a long time and had not done well. This led him to note the condition of the others, and in a short time he heard nearly all the rest of the herd cough. Within a few days he was called to make a post-mortem examination of an animal, and on arrival found the cow dead about which he had made inquiry, and the examination revealed general tuberculosis with phthisis. In a few weeks from this time the owner desired him to make a critical examination of all the cows on the farm, numbering seventeen head of grade Jersey, Ayrshire, Shorthorns and Devons.

The result of the examination was that a two-year-old heifer that stood beside the cow that died, had a bad cough, disease of the lungs, and enlargement of the external lymphatics, and death was recommended. Another cow, where the symptoms of the disease were very marked, was killed, and the post-mortem showed a similar condition of the internal organs as the one that died. Among the lot was a fine-looking cow, in good flesh, that was heavy with calf, and soon after calving she died from milk fever, and an examination of the lungs found them diseased and broken down in places. The rest of the herd, with one exception, were coughing with more or less lung disease, and the owner was advised to fatten them, and if inspection, after slaughter, showed them free from disease, to be sold.

Soon after this one was called to another farm to see a cow that had been ailing for some time, and she presented well-marked symptoms of tuberculosis, which an examination after death sustained, having general tuberculosis and phthisis. In about six weeks from this time another cow which had been gradually failing died, and the post-mortem showed similar lesions of tuberculosis as the first cow which was killed, only to a greater extent. A third one was soon killed for the same trouble, and in the barn where these three had been kept nearly all were coughing, although they had the general appearance of health.

Another case of interest is that of a gentleman in Worcester who kept a cow or two to supply his own family with milk, and also some of his neighbors. He had been supplying himself and neighbors for a year or so when he called the veterinarian to one of these cows. The doctor found a mature animal, thin in flesh, temperature 104 degrees F., unmistakable lung lesions, coughing, hurried respiration, but with a good appetite, and giving a good quantity of milk. Death was recommended, and autopsy showed tubercles in all stages of development in the lungs. In about one year was again called to the same barn to see a cow which was showing similar symptoms, and she was a daughter to the one alluded to above. She was killed, and autopsy showed similar conditions as the dam. A year or two more passed away and the doctor was sent for again, and another was found with the same

symptoms as the two preceding ones; this one a descendant of one of the others that were killed. The owner was selling the milk as usual for the children of the neighborhood, and he must have been aware that his course was little less than criminal, as he had been told the nature of the disease. He promised to have this cow killed, but he sold her for fifteen dollars to a gentleman some twelve miles out of this city, as a wet nurse for thoroughbred calves. The doctor sent word to the gentleman of the possible results if he persisted in feeding that cow's milk to calves, and again recommended death. Some months after this it was learned that the cow was not killed, but again sold for fifteen dollars, and soon after this she began to run down so fast that she was sold for the last time as a live animal for fifteen dollars to a Worcester firm, to be manufactured into bologna sausages.

The doctor cites a case of a herd of thoroughbred Jerseys within seventeen miles of Worcester, where the entire herd was killed and buried, and the barn thoroughly cleansed and disinfected. Although he does not believe it affects every herd within a radius of ten miles of Worcester, he has occasionally found it not only in the city but in almost every adjoining town; and he has no doubt but that it lurks insidiously in many a herd, and perhaps the owners may be ignorant of the fact, but he is quite sure some know they have it and keep very still.

Herd.	Bovines on Farm.	Killed.	Suspicious.	Percentage Killed.
No. 1	70	8	8	11.42
2	2	2	–	100.00
3	57	5	–	8.77
4	50	1	8	2.00
5	12	1	3	8.33
6	12	2	1	16.66
7	4	1	–	25.00
8	90	12	78	13.33
9	34	2	3	5.88
10	36	19	–	52.91
11	32	32	–	100.00
12	61	1	36*	1.65
13	14	8	-	57.14
14	5	2	3	40.00
15	4	4	–	100.00

Herd.	Bovines on Farm.	Killed.	Suspicious.	Percentge Killed.
16	7	2	5	28.57
17	30	4	2	13.33
18	5	4	1	80.00
19	25	7	2	28.01
20	35	6	–	17.18
21	2	1	–	50.00
22	1	1	–	100.00
23	1	1	–	100.00
24	8	3	–	37.67
25	28	4	–	14.28
26	30	4	–	13.33
27	44	30	14†	68.49
28	23	6	–	25.84
29	17	5	–	29.41
30	2	1	–	50.00
31	17	4	12	23.52
32	48	6	3	12.50
33	40	30	10†	75.00
34	20	20	–	100.00

*Eleven otherwise disposed of.
†Disposed of otherwise.

Herd.	Bovines on Farm.	Symptoms of Disease, but none Killed.	Suspicious.	Percentage that showed Symptoms of Disease but none Killed.
No. 1	24	2	–	8.33
2	13	2	–	15.38
3	12	1	–	8.33
4	8	–	–	–
5	38	1	2	2.63
6	15	2	1	13.33
7	11	2	6	18.18
8	7	–	–	–
9	30	2	3	6.66
10	28	2	3	7.14
11	15	1	–	6.66
12	11	2	2	18.88
13	12	6	2	50.00
14	3	2	1	66.00
15	17	3	4	17.66

Note.—The writer has been indebted to Dr. Koch, Dr. Fleming and Dr. Walley, for certain of the facts presented in the foregoing.

(Signed)

J. F. Winchester, D.V.S.

ENZOOTIC BACTERIAN HEMOGLOBINURIA OF CATTLE.

By M. V. Babes.

This disease is enzootic in Roumania, especially in the low and marshy lands lying along the Danube, and has often been mistaken for rinderpest. But after the elimination of that scourge from the Roumanian territory, the other disease remains refractory to all sanitary measures. In some localities it makes its appearance with regularity every summer, and spreading from these centers, its course is marked with great and widely diffused mortality. There have been years when from 30 to 50,000 head of cattle (oxen) have been carried off. Its effects are lighter upon cows, and calves do not suffer from it. The author has seen badly kept wells which formed the center and produced the nuclei of infection. The disease is of but few days' continuance. The symptoms are prostration; loss of appetite; difficulty of locomotion; high fever, with accelerated pulse and respiration; reddish and albuminous urine, often containing hemoglobine; in some cases constipation, and in others diarrhœa and tenesmus. At this point many animals recover from the disease. Others, more numerous, continue to lose flesh and strength and remain prostrate, while the febrile symptoms increase, the urine becoming dark red, almost black in color; muscular twitchings occur; an abundant flow of tears takes place, and there is some sub-cutaneous œdema. The post-mortem reveals a slight hyperemia of the pharynx and larynx, with congestion, catarrh and echymosis of the gastro-intestinal mucous membrane.

The small intestine often contains a large quantity of reddish brown liquid and hemorrhagic nuclei, with loss of substance of the mucous membrane, due to the *pentastoma denticulatum*. The mucous coat of the large intestines is often ecchymotic, and covered with a gelatinous mucus, its cavity containing dry fœcal masses. The follicles of the intestines are slightly altered, and the subperitoneal tissue, where the intestinal lesions exist, is œdematous and hemorrhagic. The peritoneal glands are swollen, injected and soft. The peritoneal tissue is always hemorrhagic and

œdematous. The kidneys are large, soft, and red or blackish in color. The mucous surface of the renal pelvis is ecchymosed and covered with a yellowish mucus, and the bladder is always filled with a dark reddish urine. The liver is enlarged, pale, marbled and soft, and the spleen swollen and blackish, and its pulp softened.

There is always present a characteristic bacteria, round, very small, divided in two by a median striæ, and often, in four, transversally by another. This microbe, which resembles the *gonococcus*, often forms *dipplococci*. It colors with the aniline bases, and imperfectly with the method of Gram, and is discolored if heated by alcohol. It is easily seen in the dried preparation, or upon sections colored first with the blue of Loeffler, and then with a concentrated alcoholic solution of the same color, and again with aniline oil and xylol. If colored with the violet of methyl, it is larger and has a square form, the two individuals forming the *dipplococcus* being united at their angles by a thin thread.

In the heart and blood vessels they are free, adherent to the red corpuscles, or situated inside of them. In the hemorrhagic œdema, and in the kidneys, they are more numerous, and their presence in the red corpuscles is then easily made out. The red corpuscles are, however, altered, and become less colored and less resisting. Upon section of the stomach, and especially where the ulcerations exist, the superficial necrosed tissue will not color. Numerous bacilli of various kinds are found in the glands. The diplococci are in the dilated superficial small vessels, which are filled with them. In the mesenteric glands, large masses of bacterias, smaller than those of the blood vessels, form a plasmatic network, in groups of four or more individuals. The liver, usually, is free from bacterias. In the central parts of the lobes, the hepatic cells are homogeneous and yellowish, and the intro lobular capillaries are full of broken cells, highly colored. The pulp of the spleen contains many large cells, filled with yellow pigment, and the bacterias are often found in the center of the red corpuscles, and at the periphery of the blood vessels. The capillaries of the kidneys and the glomerulae are much dilated,

and while they do not show intact red corpsucles, they are full of bacterias which are surrounded by a peculiar zone. The protoplasm of the epithelial cells of the tubes is yellowish, and often filled with pigment. The nuclei are but little colored, and often have disappeared. The tubes contain granular masses, highly colored. Bacterias are abundant in the small arteries and capillaries of all the other organs, and in the muscles.

A healthy ox inoculated with a small quantity of the blood of a sick animal is not affected by it. Feeding an ox with the products of the disease gives rise only to a temporary indisposition, with little fever. Inoculation with the blood, the fluid of the œdematous swelling, the urine, or the cultures of the microbe, to ewes, pigs, cobayas, chickens and pigeons is without effect, while rats and mice are more susceptible to it. The rabbit, however, is still more susceptible to it, and is made sick by the same inoculation, a high febrile condition supervening which often proves fatal. The post mortem reveals hyperæmic œdema and ecchymosis of the peritoneum and of the walls of the intestines, with diarrhœa and fibrinous pericarditis and pleuritis. Bacterias are found in the small vessels, especially those of the liver. In the exudates and the œdemas they are found enclosed in globules resembling altered blood corpuscles.

These bacterias are undoubtedly the pathogenic agents of the disease in cattle, though so far their inoculation has failed to prove it.—(*Journal des Soc. Scienti.*)

DIAGNOSIS OF GLANDERS WITH OLEUM TEREBENTHINÆ.

By Dr. J. Serling, (Berlin).

Professors Vogel* and Anacker† have called the attention of

*Repertorium, 1888, s, 59.

†Thierarz, (1887).

veterinarians to the use of ol. terebinth, by subcutaneous injection, as one of the means of diagnosis in cases of suspected glanders. The theory propounded is that the article possesses the property of converting a case of latent or chronic glanders into a well-defined acute case of the same disease. My object in relating the following case is to encourage veterinarians in the use of

hypodermic injections of ol. terebinth in doubtful cases, and thus to shorten the long term of time during which the affected animal may continue to be a source of danger to other animals.

In May, 1888, I was called to see a bay horse, which had been bought the preceding January, and had been taken sick in February with severe bronchitis, from which he had made a good recovery, with the exception of a slight cough.

In April he became lame, and was in that condition when I was called, having also a cough accompanied by a nasal discharge. When seen in May, I found him a strong, five-year-old horse, with every external appearance of health—skin smooth, hairs glistening, no sores, the glands free from enlargement, pulse, respiration and temperature normal. Percussion of the chest failed to detect anything wrong, though auscultation on the left side gave evidence of louder breathing there than on the right. The cough of the animal was painful, strong and convulsive, and could be readily developed by pressure on the throat. The septum nasi was clean, and nothing abnormal could be detected by minute examinations with the use of the speculum nasi and reflected light. The discharge was of a greyish color, of firm consistency and of rather offensive smell, and was more abundant from the right than from the left nostril. It was much increased when the animal hung his head down to the floor. Eating and drinking were performed in a perfectly natural manner. As far as the lameness was concerned, it was well marked in trotting or going up hill, but diminished when moving on level ground. My diagnosis was chronic laryngitis and shoulder lameness.

The treatment to which the horse was submitted for about three weeks, was followed by good results, and the cough and the discharge disappeared. The lameness, however, remained unchanged. I decided to treat it by strong counter irritation, and with that view proceeded to inject four grammes ol. terebinth in the shoulder of the lame leg under the skin.

On the night when he received this treatment he was taken with violent dyspnœa, which lasted intermittently for some time. On the following day his pulse was weak at 64, with temperature at 107° and respiration at 30. The discharge from the nose

had returned, and was mixed with blood. The septum membrane was clear, the throat very painful, the cough weak, repeated and always followed with symptoms of choking. Three days later he died.

At the post-mortem I found the mucous membrane of the larynx much swollen, and covered with ulcerations; the trachæ, at about three centimeters from the bifurcation of the bronchia, also showed a number of them. The left lung contained a crop of abscesses, some in a state of suppuration and others filled with matter of a calcareous appearance. The liver and the spleen also contained a number of them. All these were evidently lesions of glanders. If now we take into consideration the history of this case, the symptoms presented and the changes that followed the use of ol. terebinth, I think that we have confirmed the results mentioned by the German professors, and that the process is well worth the trouble of further test and experiment.

AN INTERESTING DETAIL OF EXPERIENCE WITH DISEASE IN THE WEST.

SPASMS OF THE MUSCLES OF THE EPIGLOTTIS—A TERRIBLE DISEASE AMONG STALLIONS.

By George S. Witter.

(*From the Breeder's Gazette.*)

There is a disease termed by veterinarians spasms of the muscles of the larynx or spasms of the muscles of the glottis and epiglottis. The larynx is an irregular cartilaginous tube forming the upper extremity of the trachea (or windpipe) and is the organ that produces the sound called neighing; the glottis is the upper part of the larynx, and the epiglottis is the lower part, or lid, which opens and closes the larynx; therefore, I call the disease "spasms of the muscles of the epiglottis" because it is the contraction of these muscles that causes the larynx to close. When a horse is affected with this disease the larynx becomes partly spasmodically closed, and sometimes entirely closed, but when the latter occurs death follows immediately. In the following five cases of this terrible disease which have occurred in our

herds, I will endeavor to explain every symptom, and the treatment of each case, hoping that it may prove of value to some of your readers, and that some of them can enlighten me on the proper way to effect a cure or show a cause for the disease.

In the fall of 1886 I was engaged in moving our horses from our summer range onto our winter range when I noticed that one of our stallions was sick. Whenever he would attempt to run he would take a spasm that would almost close the larynx; he would stop, stretch out his head on a line with his back, stagger around and sometimes fall to the ground in his struggle for breath; in performing the act of respiration he would make a noise almost like the bawl of a bull. I decided the case to be that of "spasms of the muscles of the epiglottis," and so left him and drove his mares down on the winter range. I went back after him the next day and found him up and looking well. He was a grade Percheron, had never been halter-broken and was very wild, so I had to drive him to the ranch, which was about ten miles distant. About the first three miles was all down hill and he traveled that distance with as much ease as any horse could, but just so soon as we started up hill he commenced to show signs of a spasm, and before we reached the top he took a spasm. He stood on his feet struggling for breath for about five minutes, and then fell to the ground and stretched out his legs, which quivered like those of a horse that is being choked with a rope and is too much exhausted to struggle any more. I saw at a glance that if he was not relieved in some way he would die in a very few seconds, as respiration had entirely ceased, so I took my pocket-knife and performed the surgical operation called trachetomy. This is done by making an opening into the trachea at about eight inches below the angle of the jaw and inserting a tube in the same. Just as soon as my knife entered the trachea he showed signs of life, and in two minutes was on his feet. I did not get the tube fastened in because he became frightened at seeing me standing by him trying to secure the tube, and ran away. It was now dark, so I went home, leaving him, as I supposed, to die. I went back after him early next morning and found him about one-half mile from where I left him, or he left me rather. He looked perfectly well, except

the gash I had cut in his neck made him look like he had his throat cut. He had traveled in the right direction, so he was on the hill that had caused his spasm the night before. The first mile we had to drive him was all down hill, and he took a fast trot and kept it up to the bottom. The next half mile was up hill, and I would have to stop every little ways and let him rest and get his breath. He did not choke down because when the larynx would close entirely, air would enter the lungs through the opening in the trachea. From the top of this hill it was all down grade to the ranch, and we got him into the corrals without any further trouble. I got him halter-broken without another spasm, and turned him loose in our stock-yards, to keep him until I could have a stable completed where I intended to keep him. In catching him to take him from the stock-yard and put him into the stable, he took another spasm and choked down and straightened out as before. I cut the old opening (which had partially healed up) open again, and the effect was the same as before. I did not fasten the tube in because I did not have a tracheotomy tube, and the only thing I had was a small brass tube, and I was afraid of blood-poison. He got along nicely after this spasm until some time in January, which was about two months and a half after he had the first spasm. Then he took what I call the "Texas itch." He began to get poor and broke out all over. I decided to use a dope with which I had successfully treated over two hundred mare. In doping him he took his fatal spasm. He stood on his feet for about fifteen minutes, biting, striking or kicking whenever I would go near him; then he fell to the ground with his head drawn down between his fore legs, and before I could straighten it out he was dead. I cut out the larynx, trachea, and lungs, and found them to be in a perfectly normal and natural condition. I was not satisfied with my examination, so I took them to Meeker and had a surgeon examine them, and he said that they were perfectly normal, and that the disease was entirely spasmodic.

In the summer of 1887 we had another grade Percheron three-year-old stallion die with this same disease. He died on the range, so I do not know very much about his case. I only know

that the symptoms were the same as in the above case. The same summer we had an imported Percheron stallion, four years old, die with this disease. This horse had been kept in the stables and had not been used for breeding purposes for over a year. Prior to the time he took this disease he had what I call "equine chorea" (St. Vitus dance); it was different from string-halt and almost like chorea in the human family. If he was surprised in any way, or if spoken to quick or sharp, he would dance back and forth in his stall, most generally crossing his front legs, and jerking his hind ones up similar to that in stringhalt. In stringhalt only the posterior limbs are affected; but this horse was affected in every leg alike, and I have often noticed the muscles twitch on different parts of his body. This horse being subject to this nervous disease, which I have just described, it might be that it located itself in the muscles of the epiglottis and caused spasmodic action of them. In the other two cases, and in two more that I will hereafter describe, I am entirely ignorant of the cause, as will be seen later.

In the fall of 1887 we had another stallion take this disease, which I have called "spasms of the muscles of the epiglottis." This horse I brought in off of the range and took good care of him, but did not try to cure him in any way. He had his last spasm about last Christmas. I turned him out on the range with a bunch of mares last spring, and he has not shown any signs of a spasm since.

Last August we had another stallion take this disease. He is in our stables now. He has had a number of spasms since we took him up, but generally they are not so hard as in the other four cases. On the 16th of last month he took a severe spasm that lasted fully thirty minutes; the sweat ran off of him in perfect streams; there was a green froth came from his mouth, and he seemed to be in terrible pain. At the expiration of thirty minutes I performed the operation of tracheotomy on him, and he was immediately relieved. I performed the operation without casting him, as he was perfectly gentle and of a kind disposition. I was unable to secure the trachetomy tube that I have, so that when the head was changed from a low to a high, or a high to

a low position, the muscles and membranes in passing over the trachea (as they do when a horse changes the position of his head) would not pull it out of the opening cut in the trachea, so I was compelled to leave it out. At this writing the opening cut in the neck has entirely healed up, but he still has spasms. I feel confident that if I could get a tube that could be kept in, this alone would effect a cure.

In addition to symptoms heretofore stated, they most generally cough while drinking water; it prevents them from neighing even if they are not in a spasm, and the least excitement or exertion of any kind is apt to cause a spasm.

This disease does not affect their appetite in the least; they will remain in good flesh, or if thin, when stabled, they will get fat if fed plenty. They always seem to feel well except when in a spasm, and I have seen them cause a spasm by playing in their paddocks. It is not contagious, as the horses that have had it have not been running together, and the mares and gelding that have been running with them have not shown any signs of the disease.

There are various kinds of acid poisons that would cause spasmodic action of the muscles of the epiglottis; but this could not be the cause, because even if there is any weed that they would eat that contained these poisons, it does not seem probable that only the stallions would eat it, and then it will be remembered that one of these stallions never ran on the range. The altitude where these horses ranged is about 8,000 feet above sea level; but I cannot see why the high altitude should affect the stallions and not the mares, as most of the mares came from Texas and two of the stallions that died were Colorado range-raised horses.

It will be seen by the above that I am entirely ignorant of the cause of this terrible disease which locates itself in the most valuable horses of our herds, and most generally carries them away in a very short time. I have not known of another case in Garfield County, or in fact in the State of Colorado, or the Territory of Utah, where I have been interested in the horse business. I have tried several different kinds of anti-spasmodic liniments and medicines, but to no good effect, and the only relief I

have found is the operation of tracheotomy which I have heretofore described.

It will be seen by the above that I only performed this operation on two of the affected horses; this was because I was not present when the others took their fatal spasm. Had I been there I would have most certainly performed the operation, but I did not like to do it unless I found it to be absolutely necessary to save a horse's life, as most horses would have to be cast or tied secure in some way, and this would be sure to cause a spasm.

There is no danger in performing this operation, as the jugular vein and "common carotid artery" lie above the trachea at eight inches below the angle of the jaw and do not come to the lower part of the trachea or surface of the neck until they reach the angle of the jaw.

SNAKE BITE AND ITS ANTIDOTE.—VII.

TREATMENT OF SNAKE BITE.

By H. C. Yarrow, M.D., Curator Dept. Reptiles, U. S. National Museum.

(*From Forest and Stream.*)

(*Continued from page* 509.)

Can we now, in view of the results of our experiments propose any plan of treatment for snake bite which will afford reasonable ground for a belief that danger may be averted and human lives spared? It is thought the question may be answered in the affirmative, especially as regards those persons bitten by North American species of poisonous reptiles, and the following suggestions are offered with the earnest desire that they may realize fully the hopes of the writer.

What shall a person do who is bitten by a venomous snake? The first advice to give is that he or she should not lose presence of mind, and become so nervous as to be incapable of cool and deliberate thoughts. If the bite is upon one of the lower limbs or upon the arms, a broad bandage of unyielding texture, if possible, should be placed tightly around the affected member, and between the bite and the heart, and be securely fastened. This

bandage or ligature can be made by tearing up a shirt and using two or three thicknesses of the material, an inelastic suspender will answer, pieces of a handkerchief may be used, or if in the woods, a strip of bark from a sapling can be hastily slit off and applied. A leather strap or thong is better than anything else, but even long grass rolled together so as to form a cord may be used in an emergency. In applying the band or ligature of whatever nature, it should be started about six inches above the bite and the turns made to run downward toward the puncture, and should be wrapped so tightly as to cause the injured limb to become turgid with venous blood. Having fastened it securely, a number of cross cuts should be made through the points of the puncture from the snake's fangs, deep enough to pass down into the muscular tissue, taking care to avoid veins which will be seen standing prominently forth, and bleeding from the cuts can be encouraged by rubbing the limb gently up and down below the ligature. A wide-mouthed bottle or similar utensil, from which the air has been driven forth by burning some whiskey or a piece of paper in it, should be applied to the wound and it will act as a cupping glass; or still better, let the bite be sucked by the patient himself, if he can get at it, or have some courageous friend with a healthy mouth perform this act for him. The pulse should be felt, and if it weakens, showing that possibly a portion of venom is reaching the general system, notwithstanding the constricting band, whiskey should be given in moderate quantities. From time to time the band should be slightly loosened and then replaced so as to admit of partial circulation, but as the heart flags, the stimulant must again be administered. It is no use to make the patient drunk, for alcoholic liquors are not antidotes; in any sense they simply act as a tonic to the failing circulation.

The writer has been informed by a gentleman, long resident in Texas, that the plan proposed has been constantly employed in that State; and that few deaths result there from the bite of venomous snakes. Of course it will be understood that these suggestions are intended to meet sudden emergencies, and not to take the place of treatment by intelligent bystanders or physicians. Under all circumstances the ligating band should be first

applied and the incision made, and then if circumstances will admit the following procedure, it is thought, will be the best. Cupping glasses should be applied over the wound, after which a 20 per cent. solution of permanganate of potassa should be injected with a hyperdomic syringe directly into the wounded tissue and retained there by means of the finger or compress. The flesh should also be kneaded so as to distribute the solution through the tissues in the immediate vicinity of the bite. In addition the patient should be made to swallow 20 minims fluid extract of jaborandi, or its alkaloid, pilocarpine, may be used hypodermically. If the venom appears to be gaining ground another injection of the permanganate may be given, followed by more of the jaborandi, or pilocarpine, but the latter drug should be suspended when it is found the patient is perspiring freely and when excessive salivation is produced. Carried too far this remedy would weaken instead of strengthening the heart. Whiskey or brandy may also be used in limited quantities from time to time. In the absence of any of the means suggested in the way of remedies the primary fact to keep in mind is the importance of the ligature, incision or scarifying the affected part, and the promotion of a free flow of blood. If nothing can be found to use as a cupping glass and no one is courageous enough to use the mouth, the old-fashioned country remedy of splitting open a live chicken and applying it over the wound may be tried, or, as has been tried in India with success, the anus of a chicken may be applied over the wound, using a number of different fowls for the purpose. The writer recommends these methods only because there is undoubted evidence of their efficacy. A piece of porous clay might be applied, as it would doubtless act in the same manner as did the snake stone in our experiments. It is very important to remember that the ligature or constricting band cannot be allowed to remain very long, as gangrene would inevitably result; it should be loosened from time to time so as to admit of a slight circulation through the affected part, and to permit a small amount of the venom only to enter the system, and the effect of this should be met by the administration of the remedies already indicated. In the case of a rapidly weakening heart, tincture digitalis in 15

drop doses might be given every two hours, or, if at hand, a few drops of nitrate of amyl might be inhaled. Everything failing it might be worth while to attempt artificial respiration, in the hope that if life could be prolonged the system might throw off the poison, as it has been shown by the Indian Snake Commission that the action of venom is actually delayed by this method. In one case mentioned by Vincent Richards $\frac{1}{4}$ of a grain of cobra venom was injected into a dog. "It took four hours and ten minutes before the animal appeared to be dying, until artificial respiration was resorted to. In four minutes more in the absence of this system this animal's heart would have ceased to beat and somatic death been completed. But by its steady application life was extended to forty-one hours and fifty-two minutes. In a desperate case there should be no hesitation in trying the effect of artificial respiration.

Before leaving the subject of snake bites it seems proper to allude to a matter which of late has received some little attention, viz., the preventive inoculation of serpent venom to prevent danger from bites, and while the writer does not commit himself to the theory he believes it may be worthy of serious consideration. As has already been stated in this paper, the Ann Arbor experiments showed conclusively that after a time with repeated inoculation of venom the animals experimented upon seemed to be much less susceptible to its effect, and quite recently an individual has been visiting the principal cities claiming an immunity from snake bite, on account of an inoculation performed on him by some South American Indians, and offering to have the matter tested upon a large dog, which had also been inoculated. It has been stated that in Philadelphia these experiments were successful. Tschudi informs us that some of the South American Indians are said to acquire an immunity from snake bite, having been previously inoculated, but the process has to be repeated from time to time. In this connection the following extract is given from the *Veterinarian* Lond., 1887, LX., 565, as it seems to bear the impress of truthfulness. "Three of the oxen were bitten by snakes. One of the bushmen undertook to cure them, and taking a knife made one or two slight incisions

round the place where the bite was, which was easily seen by swelling, and rubbed in a powder which he said was made from the dried poison sacs of another snake. In a few hours the poison had entirely subsided and the cattle were as well as their half starved state would allow them to be. I expressed some doubt whether this cure would be efficacious in the case of the more deadly kind of snake, but the bushman assured me that it would, and that he was not afraid of being bitten by any snake in this country so long as he had the poison sac of another snake to use as an antidote.

"The very next day I had an opportunity of putting him to the test. While walking ahead of the wagon I saw a full grown capell or spunghe slange lying under a bank, and calling the bushman said, 'Catch that snake alive. You are afraid of it, are you?' 'No, boss,' he replied, 'I am not afraid, and will catch it for a roll of tobacco.' Not wishing to be accessory to his death, I refused to bribe him, and went to get the driving whip to kill the snake with. I had scarcely returned when he gave it a kick with his naked foot, and the horrible reptile bit him. Coolly taking out some dried poison sacs he reduced them to powder, pricked his feet near the puncture with his knife, and rubbed the virus powder in just as he had done with the cattle. In the meantime I had put a stop to the snake biting any more by a blow from the whip stock, and the bushman extracted the fangs, drank a drop of poison from the virus sack, and soon fell into a stupor which lasted some hours. At first the swelling increased rapidly, but after a time it began to subside, and next morning he inoculated himself again. That night the swelling disappeared, and in four days he was as well as ever."

In conclusion it may be mentioned that this record of experimental inquiry is not intended as an exhaustive treatise, for as opportunity occurs other experiments will be tried with such supposed remedies for snake bite as may be offered, and the results will be duly published. In conducting the experiments the writer has been influenced by the motives only of adding to the sum of human knowledge and alleviating human misery, and if he has succeeded in this he will be amply repaid for the labor and dan-

gers incident to the research. His thanks are ofiered to several persons who have aided him, more especially to his industrious and energetic assistant Mr. E. B. Rheem and to Capt. Bendire, U. S. A. It is proper to add that the greater part of the expenses of the investigation have been borne by the National Museum.

(*Concluded.*)

REPORTS OF CASES.

EXPERIMENTS WITH ESERINE.

By R. T. Whittlesey, D.V.S., Los Angeles, Cal.

Case 1, ch. g.—Gave one gr. hypodermically; got increased murmur, but no passage of flatus or fæces at all.

Case 2, br. g.—Been colicy for several hours before I saw it at 5 P.M., and gave aloes ball and 2½ gr. morphia hyp. Pain ceased. Called again at 9.30. Had been in pain for about an hour; gave 1 gr. ezerina. Showed only a little pain after the injection; some escape of flatus: in 30 minutes very marked peristaltic movement. Watched the case an hour but no passage of fæces.

Case 3, g. g.—Colic from change of feed to wheat straw chopped with ground feed. At 10 A.M. gave aloes ball and 5 gr. morphia. At 5 P.M. another 5 gr. morphia hypodermically. At 10.30 P.M. another 5 gr. morphia. The pain would cease after each of these for several hours. At 6 A.M. administered 1 gr. eserine hypodermically; watched it an hour; no effect except that there was little or no pain. 10A.M., he was still having pain at times; gave 1 gr. eserine freshly dissolved; in fifteen minutes pain increased, and in just forty minutes there was a small evacuation, soon followed by another, and in the next thirty minutes there was eight evacuations, the last very watery.

This last dose of eserine was freshly dissolved; the others I am satisfied had been dissolved for several weeks.

Case 4, b. g.—Had been overfed on ground barley in the morning. Saw him at 5 P.M.; gave 5 gr. morphia and an aloes ball; was quiet most of the time until 10 P.M., when I gave another 5 gr. morphia, but did not get the desired effect as the pain con-

tinued unabated, and at 11 P.M. I gave 1 gr. eserine and 2½ grs. pilocarpine in one drachm of water; commenced to froth at the mouth in ten minutes, flatus was passed in fourteen minutes, and very frequently afterward, great trembling of the limbs but no perspiration of any consequence; first evacuation in 27 minutes, great pain just before its appearence, and pain at intervals afterward for an hour, but only one other passage and I watched him for an hour and a half. He then quieted down and I left him for the night. The two passages were soft and covered with mucus. Next morning I found the floor tramped down hard where he had walked in a circle, but no sign of any fæces. For the greater part of the day he continued to walk around the corrall with his mouth partly filled with hay, or stand at the water trough. I gave no more medicine, as his pulse was full and strong and he had no extreme pain. At 5 P.M. he had a passage covered with mucus, next day he was scouring freely. In this case I think the morphine prevented the full effect of the eserine and pilocarpine.

CASE 5, b. g.—Colic from wheat straw chopped with barley. At 3 P.M. gave 5 gr. morphia and an aloes ball. Pain ceased until about 1 A.M., when I was called and gave 1 gr. eserine and 1¼ pilocarpine. The salivation was slight, first evacuation in 25 minutes, and five more within the hour, the last ones very soft; the aloes worked all right the next afternoon.

CASE 6, sl. g.—Colic from over-feed of barley. Gave 5 gr. morphia and an aloes ball, some flatulence and I used the trocar; gave morphia from time to time to keep down the pain for twenty-six hours; there then being no action from the aloes, I gave 1 gr. ezerina; first evacuation in 16 minutes, no more for an hour; he lay down most of the time; in about an hour he got up and had six passages in fifteen minutes and they continued through the night, less frequently however.

CASE 7, g. g.—Traumatic tetanus. I had given two ounces of aloes per rectum without any effect; gave ¾ gr. eserine; it caused a considerable amount of uneasiness for about five hours without causing an evacuation of the bowels.

CASE 8, g. g.—Been overfed on chopped barley, hay and grain; sick for several hours before I saw him, and was in great pain.

Gave 5 gr. morphia but had no aloes ball at hand. He stopped rolling but kept pawing and walking in a circle. At the end of an hour I gave 1½ gr. eserine; in about fifty minutes he passed a quantity of dry, powdery fæces, at the end of two and one half hours he had passed nothing more and was still in pain; gave ¾ gr. eserine and 1¼ gr. pilocarpine; in thirty minutes he had a passage of fæces and seemed much easier; so I left him for the balance of the night. Next morning he was having slight but constant pain; gave a large aloes ball, and about middle of the forenoon I gave 1 gr. eserine and 2½ gr. pilocarpine, which caused quite a large passage in forty minutes and another in about sixty minutes; an hour after I gave a warm water enema, which brought away a large amount of fæces. The horse eased down after this and I waited for the aloes to act but he died thirty-six hours after without any action, although he was in no apparent pain and the pulse was reasonably strong and soft up to the second night after, when we left him, to find him dead in the morning. Had no opportunity for a post-mortem.

Case 9, g. colt 16 mo.—Impaction from alfalfa. For the benefit of vets. who are not used to alfalfa I will explain that it somewhat resembles clover as a feed, and animals eating it are generally very loose, but if they do get impacted it is almost always fatal, as the fibers form a mass of about the consistency and digestability of a hard pressed ball of wet oakum. The colt had had one pint of linseed oil the night before I saw it; gave ¾ gr. eserine; no evacuation, some pain; lay down and could not get up. This was in the forenoon. Saw it again at 1.30 P.M., gave 1 eserine and 1¼ grs. pilocarpine; caused profuse salivation and muscular twichings; two or three hard pellets came away. In one and one-half hours gave ½ gr. eserine; no evacuations; a little flatus was passed; paristaltic murmur very loud at times. 7 P.M. was down and unable to rise; gave 1½ gr. eserine, made an examination per rectum; found it empty but could feel the impaction in the colon; it was very large and would dent with pressure. The eserine caused great pain for an hour, then he lay very quiet; we dragged him into a box stall as he was unable to rise, and he died about 10 P.M. I have no doubt that the eserine

hastened death, without having the desired effect, as the doses were enormous for a 16 mo. colt.

Case 10, grm.—Had azutoria, a relapsed case, having been turned loose to play next day after a light attack. Gave one oz. of aloes with gentian; it failed to act in due time and I gave 1½ gr. eserine; the rectum was emptied in thirty minutes and one small passage a few minutes later was all. She died the following night.

Cases 11 and 12.—Two colts, one a yearling, the other a 3 yr. old, had been turned from alfalfa into dry corn stalks and wads. When I saw them the youngest had been showing pain three days, the other two, the owner said "go for them, I think they will die anyway." I administered 1½ grains eserine and 1¼ grains pilocarpine to the youngest and he died in just thirty-two minutes with tetanic convulsions; he stood up and tried to walk until the last, although he had lost all power of co-ordination in fifteen minutes, and reeled, crossed his legs and staggered like a drunken man. I made an autopsy immediately and found an impaction in the small intestine about nine inches long. It slipped along the intestine very easily, which I think a result of the action of pilocarpine. There was no evacuation before or at death.

I gave the other colt the same dose. It caused a great deal of uneasiness and straining, but no fæces made an appearance in one and a half hours, although pain was less at the end of that time. I gave an aloes ball and left 1 grain eserine to be given in the morning and went home; it died the next afternoon without having had any movement of the bowels at all.

Case 13, g. g.—Had colic all day; pain not very great, but constant. Morphia did not have much effect; gave 1 grain eserine with no results except that the pain seemed to cease. He was all right next day. I have used eserine in a number of other instances but with results similar to those described.

In one instance I gave what was supposed to be 3 grains dissolved in a few ounces of water, as a drench, with no visible effect. While it cannot be relied upon to always have the desired effect, I consider it a wonderful remedy and worthy of trial in any case of obstinate constipation. My experience has been, however, that as a remedy in the first stages of the attack it is

worthless, and even if it does cause an evacuation of fæces, there must be a physicking out from some cathartic remedy before the animal will get well.

And I have failed in every instance where I was satisfied there was an impacted lump in the gut, as in Case 11, where the lump was so solid that I kicked it clear across the corral without breaking it in pieces. I have had as good results with eserine alone as combined with pilocarpine; still I think that in some protracted cases pilocarpine will have a tendency to ward off enteritis. I think eserine will be found to act the best administered about twenty hours after a big physic ball, when it has failed to operate.

EXTRACTS FROM FOREIGN JOURNALS.

TŒNIA IN THE ŒSOPHAGUS AND KIDNEYS OF A DOG—RABID SYMPTOMS.

By M. Wolpert.

For some time previous the patient had been affected with fits of a peculiar epileptic character, and had now for two days kept up a persistent howling, and refused his food. The case presented the following aspect: staring eyes; pendant mouth, with an abundant discharge of foamy and yellowish saliva; mucous membrane black and coated; tongue hanging out and swollen, and great thirst, with inability to swallow. While these symptoms might suggest the existence of rabis, many of the signs precluded such a diagnosis. The examination of the throat or of the œsophagus failed to reveal the presence of foreign bodies. The presence of other dogs caused no excitement.

A large dose of castor oil was given, and was followed by a good purgation, but without any improvement in the symptoms. The dog was then destroyed. The post mortem brought to light a large tœnia serrata, which was found attached in the œsophagus, some segments also existing in the stomach. The small intestines also contained a large number existing in the shape of balls. The kidneys and gall bladder were very large, the latter being distended by a large quantity of bile. Both kidneys con-

tained tœnia in their pelves, the nudullary substance of the organ being entirely destroyed.—(*Revue Veterin*)

ENORMOUS FIBROMA AND INVAGINATION OF THE FLOATING COLON IN A STEER.

By G. Furlanetto.

This animal, which had been recently bought, had been in perfect health since his purchase, and about two weeks later had been put to work in the field, when he manifested great difficulty in defecation, straining violently. This effort produced a discharge of blood, almost pure and increasing in quantity with each expelling effort. When visited by Dr. Furlanetto the anus, perineum, and the tail, with the internal face of the hind legs, were covered with fresh blood. The pulse was accelerated and weak, and the cutaneous temperature lowered. At the anus a tumor appeared, about the size of a base ball, of a brownish color, rough externally, bloody and imperforate. The introduction of the hand into the rectum caused the return of the tumor into the pelvis, or from thence into the abdominal cavity, where it dropped, and could only be felt with the ends of the fingers, by pushing the whole arm deeply into the rectum. The animal having been destroyed for the butcher, was examined, and on opening the abdomen, the trouble was found to be due to an invagination of the floating colon. The rectum was greatly distended by a large polypus, 40 centimeters in length, and 16 in its widest part. This growth had a long peduncle, attached to the terminal end of the colon, and was easily displaced backward, even to the anus, and had given rise to the invaginations. Its structure proved to be that of a single fibroma.—*Rec. Clin. Med. and Chir., Trevise degli Animaux Domestiques.*

SPONTANEOUS RUPTURE OF THE PRIMITIVE AORTA—SUDDEN DEATH.

By the Same.

First Case.—This was an aged animal which had been driven about half a mile, at a fast gait, and when turning round to go back was suddenly taken with violent trembling and staggering, and fell and died. At the opening of the thoracic cavity the

pericardium was found to be enormously distended by several quarts of coagulated blood, which had come from the primitive aorta, in which a laceration appeared about two inches long, near the origin of the left coronary. The walls of the artery seemed to be thinner than in the remainder of its course, where it appeared normal.

Second Case.—A mare drawing a light vehicle was subjected to about the same kind of effort, and, in returning, underwent a similar experience of symptoms, and dropped dead.

The pericardium presented the same condition as in the other case, and was filled with coagulated blood. The aorta was also ruptured, the lesion having taken place at the origin of the vessel, near the right coronary. The rupture was horizontal, and measured a little less than two inches. The edges of the wound on the inside were regularly torn, and smooth, while on the outside they were ragged and projecting. The walls of the aorta seemed otherwise healthy.—*Ibid.*

A CASE OF PALPITATION OF THE AORTA.

By the Same.*

An old mare, sick for thirty hours, presented the following symptoms: Dull expression, eyes closed, extremities cold and violent jerks and beatings back of the left flank, so strong that when they occurred the whole body was shaken. They were observable at a distance, and increased with every movement of the animal. On auscultation the seat of the motion was observable on a level with the false ribs, a little below the vertebral column. By placing the hand over the cardial region, the beating of the heart could be felt in its normal strength, and the jerks or convulsive contractions were found to be synchronous with the pulsations of the glosso facial. The animal refused all food, both solid and liquid. The temperature and pulse were normal, but respiration was somewhat accelerated. Defecation was also normal. The treatment included an electuary of digi-

* This is a case of diaphragmatic chorea—spasms of the diaphragm or stumps.

talis, with nitrate of potash and emetics. On the third day, the spasms became more violent, when a dose of sulphate of magnesia in an infusion of chamomile was given, which was followed by relief, and a complete recovery in about ten hours.—*Ibid.*

A CASE OF SCIATICA IN THE HORSE.

By the Same.

The patient in this case became lame in the left posterior leg, which, increasing, by degrees, had become intense. The animal stepped only on his toe while walking, and when at rest his leg was held up all the time. Nothing appeared in the foot, and there were no visible external lesions. Pressure on the leg along the course of the sciatic nerve and its branches evidently caused great pain, and hard pressure on the front of the metatarsus produced suffering so intense that the animal let himself drop.

The suffering became overpowering when the hip, the stifle and the tendon achilles were pressed upon. The appetite was lost, pulse acclerated, temperature normal; the lameness was slightly mitigated by exercise. The treatment was by friction of belladonna ointment, three times a day, over the painful, nervous spots, with bromide of potash internally, which was followed by an improvement which enabled the animal to take exercise. But a subsequent relapse occurred with an apparent aggravation of the pain and an excessive development of all the symptoms. The treatment was then changed to frictions of oil of belladonna internally, electuaries of the same drug, and the result was favorable. The animal was able to resume his work in a month, and since then has had no return of the malady.—*Ibid.*

ARTHRALGIA OF COWS RECENTLY DELIVERED.

By Prof. Dessart.

Under this name the author describes a rheumatismal affection of milch cows, which he had observed, and which had affected eight animals out of a herd of eighty-two. In the history of the affection it is stated that all the cows had been safely delivered, but that after a few days the affected animals began to

walk with an arched back and knuckling at the fetlocks, though showing at first no excessive flexibility of the back or loins, but on the contrary at a later period, stiffening into an intense rigidity. After a few days, the animal would bring her legs together as if affected with laminitis of the fore feet, those which were more affected getting up with difficulty, and with a peculiar movement, first elevating the hind quarter, and remaining in that partly upright posture for a period varying from a few minutes to half an hour, before completing the rising movement. The gait in walking was hesitating and staggering, and at times a cracking of the joints was heard, while some one or other of the muscular masses became the seat of tremblings or spasmodic contractions. The animal was more or less lame, and there was a peculiar stiffness of one or more of the extremities; none of the great functions seemed to be disturbed; none of the animals died. The treatment was preventive and curative. The first consisted in warm woollen blankets immediately after delivery, with thick, clean bedding and warm drinks, and protection from exposure. The second, with the same hygiene, included cod liver oil, 250 grammes, (about 8 ounces) a day in two doses, and stimulating frictions over all the joints of the extremities.—*Annales de Bruxelles.*

CONTRIBUTION TO THE STUDY OF ANEURISMAL TUMORS.

By Mr. Ed. Godfrin.

This is the record of the fatal termination of two cases of aneurisms of the posterior aorta in two colts, one two and a half years old, the other eighteen months. The diagnosis was made during life by rectal examination, which enabled the author to detect in each of the cases an indolent tumor, about the size of a man's fist, situated in the sub-lumbar region, in front of the right kidney. In both cases the pulsation was readily detected. An unfavorable prognosis was confirmed by the sudden death of both animals, which took place a few days afterwards. At the post-mortem the abdomen was found to be filled by a large bloody collusion, due to the rupture of the aortic aneurism.—*Ibid.*

CHRONIC TYMPANITIS, RESULTING FROM HYPERTROPHY OF THE PECTORAL LYMPHATIC GLANDS.

By M. J. Darieux.

This is the record of a cow which was suddenly attacked with tympanitis after her morning meal. The first attack was relieved by puncture of the rumen with a fine trocar and the administration of 400 grammes of sulphate of soda given in three doses. The animal had already had an ounce of ether in a pint of alcoholic mixture. She did well for a few days, during which she calved, her delivery being accomplished without difficulty. She was, however, again attacked in the same manner, and was again relieved by low diet with doses of nux vomica. This giving but little relief, a resort to permanent rumenotomy became necessary, the canula of the trocar being left in place for six days. Still the relief was only temporary, and the general condition of the patient began to suffer. Rumination became irregular, the appetite diminished, and the milk was reduced in quantity, and still the most careful and repeated examinations of the patient failed to develop any indications of disease sufficient to explain the difficulty. The animal was ultimately destroyed. An abscess was found in the abdomen at the point of the punctures previously made with the trochar. All the abdominal organs were healthy except a lymphatic gland of the liver, which had become much enlarged. In the chest the pectoral ganglions were very large, two of them especially which surround the œspohagus and trachea. The bronchial and mediastinal glands also were hypertrophied, and a section of these showed them to be the seat of calcareous deposits. None of them contained pus. The lungs present contained about twenty tuberculous deposits of various size.—*Ibid.*

SOCIETY MEETINGS.

NEW JERSEY STATE VETERINARY SOCIETY.

The New Jersey State Veterinary Society held its regular meeting at the Hamilton House, Paterson, New Jersey, on Thursday, February 7th, 1889, at 2 P. M.

The minutes of the previous meeting were adopted as read.

The Treasurer's report was also accepted.

Dr. A. T. Sellers, of Camden, a graduate of the American Veterinary College, was proposed for membership of the Society, and it was referred to the Board of Censors, who will report at the next meeting.

The Secretary read Senate Bill No. 12, to regulate the practice of veterinary medicine and surgery, which is now before the Legislature; a very lively discussion followed, after which the members present approved the bill. Dr. Lowe thought that the proposed bill could be enacted as a law if the veterinarians would unite to concerted action.

The delegates appointed to attend the meeting of the Alumni of the American Veterinary College are as follows: Dr. J. C. Corlies, Dr. W. H. Lowe, Dr. A. H. McIntosh, Dr. J. F. Autenrieth and Dr. C. Kuehne.

The paper read by Dr. J. F. Autenrieth on "The Operation of Tenotomy, its application in Sprung Knee and Knuckling," was a very able one and brought forth some very interesting facts; the author spoke highly of the operation in these diseases, and the discussion following was very instructive.

Dr. W. H. Lowe made a motion to make an amendment to the Constitution (Article V) which reads: "There shall be four regular meetings of this Association every year; one in August; one in November; one in February, and one in May. Each meeting shall be held on the first Thursday of the respective months, with a banquet once a year at the annual meeting in Angust," to have but two meetings each year, the annual meeting to be held the first Thursday in August, and the regular meeting to be held on the first Thursday in February. The matter was submitted to the Board of Trustees, who will report at the next meeting.

It was decided to hold the next meeting in Newark on Thursday, May 2d, at 2:30 P. M., and the Board of Trustees to meet at 2 P. M.

The meeting then adjourned.

CHARLES KUEHNE, Ph. G., D.V.S., *Secretary.*

MASSACHUSETTS VETERINARY ASSOCIATION.

At the regular meeting of this Association, held at the rooms of the Boston Medical Library Association, December 26th, 1888, the President, Dr. J. F. Winchester presided, and there were present Doctors Blackwood, Bryden, Stickney and Howard of Boston, Marshall of Brookline, Osgood of Springfield, Simpson of Charlestown and Pierce of 5th Cavalry, Fort Reno, Indian Territory.

After reading the minutes of the previous meeting and the transaction of some minor business, Dr. J. F. Winchester read a paper on Tuberculosis. (*).

At the conclusion of the paper Dr. Winchester said that the particular point he had endeavored to make was, that tuberculosis is a contagious disease and in his opinion *tubercular phthisis is more contagious than contagious pleuro-pneumonia in cows, or glanders in horses*, and that this point had been fully demonstrated by the many cases he had detailed, where an affected herd had been entirely destroyed, the barn disinfected and empty for a year, and when a new herd, free from disease, had been brought in, tuberculosis was again set up.

(*) This paper is published among the original articles of this issue.—Ed.

Dr. Bryden said there was no question now about the influence of heredity or contagion in this disease, and the important question is, at what stage is the animal unfit for sustenance by the flesh or milk?

Dr. Winchester said the Paris congress had shown that it was possible to reproduce the disease from *any* stage.

Dr. Osgood detailed an experience in the western part of the State, where a whole herd was destroyed affected with this disease. The stables remained empty for more than a year, at the end of which time six Jerseys were brought into them directly from Europe, having been thoroughly examined before shipment by a competent man. Tuberculosis was again set up, and the whole herd was finally destroyed. Dr. Osgood said further, that he believed that with this disease, as with glanders in horses, the only way to get rid of it was to burn the buildings in which it had been in addition to destroying the animals.

Dr. Winchester said that one thing about this germ, it requires a certain temperature for development, and we do not know in how low a temperature it will retain its activity, and whether or not freezing will destroy it.

Dr. Stickney said the magnitude of this disease is not astonishing when we consider that we have been importing it for thirty-five years. We have developed by breeding the desirable qualities of the animals and why not this disease, as vices are more often reproduced than virtues.

Dr. Osgood said that when the public comes to recognize this disease as contagious, we may then have a law to aid us in controlling it or getting rid of it.

Dr. Bryden raised the question, whether or not exposure alone would produce this disease.

Dr. Winchester said, that we must have the *germ* from somewhere; privation or exposure *alone* would not produce it. He related that in a section of a certain town in his vicinity, most all of the deaths of people were at about twenty years of age from consumption. The people live huddled together, no ventilation or other sanitary conditions present, but the disease is produced by contagion; it is in those houses.

Dr. Bryden said he thought excess of nutrition might be a predisposing cause also, and one reared in luxury be very likely to contract the disease.

Dr. Winchester said that in regard to the *condition* of animals in which it is present, he had seen as handsome an animal as could be found in Brighton, taken home, killed, and found to be rotten with tuberculosis. In loss of lung substance we often have an increase of fat, that is, up to a certain point, and then they will go down the scale very fast. Another fact in regard to this disease is, that where it is prevalent we generally find that the animals are kept for a certain purpose, and *pushed* for it, and are often found confined in low studded stables. This disease will lie latent for generations also, and then crop out.

At the conclusion of the discussion, a unanimous vote of thanks was tendered the essayist, Dr. Winchester. It was also unanimously voted that the Association request Dr. Winchester to read this paper at the meeting of the United States Veterinary Medical Association to be held in March.

Application for membership was received from Myron Chapin, D.V.S., of Springfield.

L. H. HOWARD, *Secretary.*

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The sixth semi-annual meeting of this Association was to take place on the 8th of February at Springfield. All veterinarians, whether members of the Association or not, were cordially invited. The programme involved the reading and discussion of the following papers: "Tetanus," by F. Booker; "The Veterinary Profession in its relation to Agriculture," by Prof. G. E. Morrow; "Strangulated Umbilical Hernia," by J. Scott; "Report of Cases of Lacerated Wounds," by W. A. Baker; "Septiæmia after Castration," by T. B. Newby; "Malaria in Horses," by J. T. Pease; "Arthritis in Foals," by J. F. Reid

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

The Ohio State Veterinary Medical Association held its sixth annual meeting in the G. A. R. Hall, Columbus, January 15th, 1888.

President Dr. J. S. Butler called the meeting to order at 2 o'clock P. M.

Roll call, twenty members responded.

Minutes read and accepted.

The President, addressing the members present, gave an able review of the past and present condition of the Association, making many valuable suggestions in regard to its future progress. A vote of thanks was tendered Dr. Butler for the able way in which he had fulfilled the duties of his office during the year.

The officers for the ensuing year were elected as follows: President—Dr. T. B. Hillock, Columbus; First Vice-President—Dr. D. P. Yonkerman, Cleveland; Second Vice-President—Dr. Labrow, Xenia; Third Vice-President, Dr. Charlesworth, Springfield; Secretary—Dr. W. J. Torrance, Cleveland; Treasurer—Dr. W. R. Howe, Dayton.

Board of Censors—Drs. G. W. Butler, Circleville; J. D. Fair, Berlin, and E. H. Shepard, Cleveland.

Letters were read from Profs. Smith, Toronto, and Liautard, New York, and Dr. W. G. Williams, of Bloomington, Ills., regretting their inability to attend the meeting, and expressing their good wishes for its future prosperity.

The Corresponding Secretary also read the "Cowgill" bill to regulate veterinary practice now before the Ohio Senate. No definite action was taken in regard to the bill.

Dr. Newton, Toledo, read an interesting paper on "Lameness," particularly that of the "coffin joint." He strongly advocated "low neurotomy" as a surgical treatment, and cited in detail recorded notes of many cases where he had thus operated.

A long discussion npon the merits of cocaine in this and other operations followed, in which Drs. Torrance, Howe, Hillock, Butler and others took part.

Dr. W. P. Yonkerman advocated "nerve stretching" in many cases as a substitute for neurotomy.

Drs. Howe and Shaw described the veterinary operating tables at present in use, and spoke favorably of their use.

Dr. Shaw, Dayton, reported a highly interesting case of "Fistula of the Withers," secondary to "Irregular Strangles."

Treasurer Newton read the annual report, showing a healthful surplus in the treasury.

A motion was carried giving the Secretary a yearly remuneration of $20 for his services to the Association.

Dr. Torrance exhibited a specimen of hair and epithelium taken from a horse affected with a peculiar "exfoliating dermatitis," which he claimed was prevalent in certain pastures south of Cleveland. He had failed to find a parasitic causation for the malady, and had evidence to attribute it to acrid plants upon woody pastures.

Dr. D. P. Yonkerman exhibited an improved method of hypodermic medication with tablets of the alkaloids. His system received the highest commendation, and the thanks of the meeting were tendered the doctor for his contribution to the veterinary profession.

The meeting adjourned to reassemble in the evening.

The meeting reassembled for an evening session at 7 P. M. The President for the ensuing year, Dr. Hillock, took the chair and addressed the meeting.

Dr. J. S. Butler reported a critical and long-lasting case of "Impacted Colon" in a two-year-old colt, and in which the tympanitis required in all thirteen repetitions of "paracentesis abdominalis," and in which the recovery was decisive and perfect in all respects. The merits and effects of the trochar and canula, and also of the use of eserine in this and other affections were discussed by Drs. Colton, J. S. Butler, Shaw, Yonkerman, G. W. Bullar, Fair, Torrance, Meyer, Hillock, Lee and others at considerable length. The discussion elicited much new and interesting information.

Dr. Howe, of Dayton, then read an able and original paper on "Eserine," based on a varied and extensive usage of the drug. An instructive discussion followed.

A discussion of "Azoturia" followed, in which Drs. Lee, Taylor, Newton, Torrance and others took part.

Dr. Yonkerman preferred charges of "Breach of Etiquette" against Dr. Shaw, of Dayton. An inflammable controversy upon free doctoring insurance companies followed. The charges were referred to the Board of Censors.

Judge Jones, of the Ohio State Board of Live Stock Commissioners, made some complimentary remarks upon the standing of the veterinary profession in Ohio and the United States generally.

Drs. J. S. Butler, Meyers and Newton were appointed a committee to draft resolutions of condolence to be forwarded to the widow of the deceased Dr. A. S. Smith, of Pleasant Hill, Ohio.

Drs. Colton, Newton, Charlesworth and others spoke on veterinary legislation. While Dr. Newton referred to the dehorning of cattle—which he advocated—in which he was opposed by Dr. Colton.

The President appointed the following committees: Committee on Veterinary Progress—Drs. J. C. Meyer, Jno. Fair and Colton. Committee on Animal Diseases—Drs. Yonkerman, Shaw and Newton.

It was decided that the next semi-annual meeting should be held at Delaware, Ohio.

The following gentlemen were selected to read papers: Drs. White, G. W. Butler, Charlesworth and Derr.

W. J. TORRANCE, V. S. *Sec'y.*

SANITARY EXTRACTS.

GLANDERS IN MAINE.—From the reports of the Commissioners on Contagious Diseases of Animals in the State of Maine, it appears that glanders and farcy have been increasingly prevalent during the year 1888, and that the matter has been considered sufficiently serious to attract official notice, and to justify the establishment of a special prohibitory quarantine.

The following order explains the condition of things:

"Public notice is hereby given that in consequence of the prevalence of glanders and farcy among the Texas mustangs, or broncho horses, brought into Maine and sold to the number of 2,900 during the season of 1887, no more broncos will be allowed to be landed or exposed for sale in the State until further notice."

The same report states also the interesting fact that only three cases of tuberculosis have developed during the year, out of the whole number inspected.

The report further says that glanders does not prevail among horses in the State, and intimates a strong probability that the cases which have been developed among them are the result of inoculation from horses brought into the commonwealth from abroad.

A few cases of abortion in cattle are also reported.

GLANDERS AND FARCY IN MINNESOTA.—From the Public Health Report of the State Board of Health, for November and December, we extract the following table:

DISEASES OF ANIMALS FOR SEPTEMBER.

Cases of glanders remaining isolated or not accounted for	29
Reported during the month	17
Killed	10
Released	3
Isolated	9
Remaining October 1st isolated or not accounted for	35

NOTE.—Most of these are cases exposed, and isolated for further observation.

DISEASES OF ANIMALS FOR NOVEMBER AND DECEMBER.

Cases of glanders remaining isolated or not accounted for	31
Reported during the months	8
Killed	10
Released	14
Isolated	4
Remaining January 1st, 1889, isolated or not accounted for	15

NOTE.—Most of these are cases exposed, and isolated for further observation.

CATTLE DISEASES IN CANADA.—Under date of December 31, we have official assurances from the inspector of stock of the Dominion, that there are no such diseases in the Dominion, and none have occurred recently except "a few slight local outbreaks of anthrax, which have been promptly stamped out."

GLANDERS IN MISSOURI.—From the last report received from the State Veterinarian, Dr. P. Paquin, we extract the following appendix relating to glanders:

NUMBER OF CASES OF GLANDERS.

In the neighborhood of Breckenridge, Mo	2 cases
" " " Rothville, Mo	2 "
" " " East Leavenworth, Mo	1 case
" " " Jamesport, Mo	1 "
" " " Trenton, Mo	1 "
" " " Carthage, Mo	1 "
" " " Chain of Rocks, Mo	2 cases.
" " " Jackson, Mo	2 "
" " " Glasgow, Mo	1 case.
Total	13 cases.

Number of miles travelled (approximately) 3,500.

The treatment of all those cases consisted in either legal quarantine or slaughter. So protection was complete in every instance. However, some thirteen deaths had occurred all told before State service could be secured or was demanded. Material for experiments was gathered and is being used in the study of glanders.

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